STIC Search Report
EIC 1700

STIC Database Tracking Number: 146877

TO:	From:
Sin J Lee Location: REM 9D60 Art Unit : 1752 March 15, 2005 Case Serial Number: 09/992560/A	Kathleen Fuller Location: EIC 1700 REMSEN 4B28 Phone: 571/272-2505 Kathleen.Fuller@uspto.gov

Search Notes

146877

For cl. # 22, 38 & 62

22. 38.

62

sira
Search and Information Resources Administration

STIC Search Results Feedback Form

USPTO

EIC17000

Questions about the scope or the results of the search? Contact ***the EIC searcher or contact:***

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- *I am an examiner in Workgroup:* ☐ *Example: 1713*
- *Relevant prior art **found**, search results used as follows:*
  - ☐ 102 rejection
  - ☐ 103 rejection
  - ☐ Cited as being of interest.
  - ☐ Helped examiner better understand the invention.
  - ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
  (journal articles, conference proceedings, new product announcements etc.)

- *Relevant prior art **not found:***
  - ☐ Results verified the lack of relevant prior art (helped determine patentability).
  - ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to EIC1700 REMSEN 4B28

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Search and Information Resources Administration

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Access DB# 146877

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Sin J Lee Examiner #: 76660 Date: 2-24-'05
Art Unit: 1752 Phone Number 30 2-1333 Serial Number: 09/992,560
Mail Box and Bldg/Room Location: 9D66 (Rem) Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: B:b attached

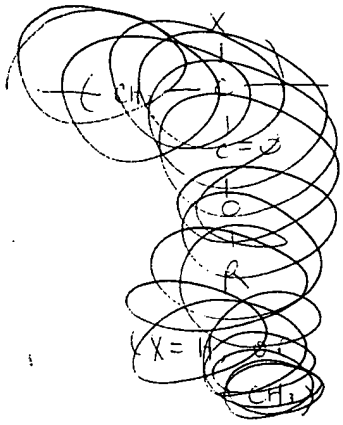
Inventors (please provide full names):

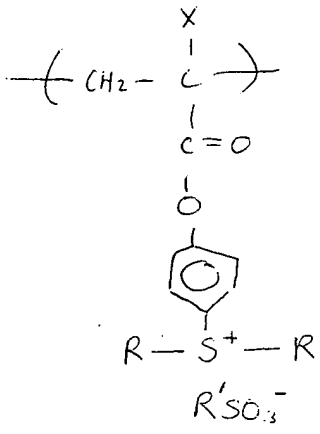
Earliest Priority Filing Date:

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

A

Please search for the following polymer





(X = H or -CH3)

(R = alkyl (C1-C4 alkyl))

(R' = alkyl, or fluorinated alkyl) ↓ for example CF3

****

STAFF USE ONLY

Searcher: K. Fuller
Searcher Phone #:
Searcher Location:
Date Searcher Picked Up:
Date Completed: 3/15/05
Searcher Prep & Review Time: 20
Clerical Prep Time:
Online Time: 20

Type of Search

NA Sequence (#)
AA Sequence (#)
Structure (#) 4
Bibliographic
Litigation
Fulltext
Patent Family
Other

Vendors and cost where applicable

STN ✓
Dialog
Questel/Orbit
Dr.Link
Lexis/Nexis
Sequence Systems
WWW/Internet
Other (specify)

PTO-1590 (8-01)

=> file reg
FILE 'REGISTRY' ENTERED AT 10:01:28 ON 15 MAR 2005
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Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 14 MAR 2005 HIGHEST RN 845540-96-7
DICTIONARY FILE UPDATES: 14 MAR 2005 HIGHEST RN 845540-96-7

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 18, 2005

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Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

=> file hcaplu
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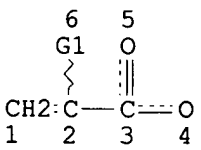
FILE COVERS 1907 - 15 Mar 2005 VOL 142 ISS 12
FILE LAST UPDATED: 14 Mar 2005 (20050314/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d que
L1 STR



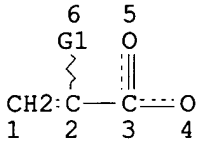
VAR G1=H/CH3/CL
NODE ATTRIBUTES:

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 6

STEREO ATTRIBUTES: NONE
L3 SCR 2043
L5 279001 SEA FILE=REGISTRY SSS FUL L1 AND L3
L6 STR 1



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NUMBER OF NODES IS 6

STEREO ATTRIBUTES: NONE
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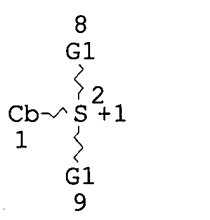


61 polymers from structures 1 and 2

VAR G1=AK/CB
NODE ATTRIBUTES:
CHARGE IS E+1 AT 2
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 4

STEREO ATTRIBUTES: NONE
L13 61 SEA FILE=REGISTRY SUB=L5 SSS FUL L6 AND L10
L14 37 SEA FILE=HCAPLUS ABB=ON L13
L15 11 SEA FILE=HCAPLUS ABB=ON L14(L)?RESIST?

11 CA references

=> d l15 1-11 bib abs ind hitstr

L15 ANSWER 1 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:742146 HCAPLUS
DN 140:101908

TI A new nanocomposite resist for low and high voltage electron beam lithography

AU Azam Ali, M.; Gonsalves, Kenneth E.; Agrawal, Ankur; Jeyakumar, Augustin; Henderson, Clifford L.

CS Department of Chemistry and Cameron Applied Research Center, Polymer Chemistry NanoTechnology Laboratory, The University of North Carolina-Charlotte (UNCC), Charlotte, NC, 28223, USA

SO Microelectronic Engineering (2003), 70(1), 19-29
CODEN: MIENEF; ISSN: 0167-9317

PB Elsevier Science B.V.

DT Journal

LA English

AB A novel nanocomposite photoresist was synthesized and characterized for use in both low and high voltage electron-beam lithog. This resist system is shown to display the ideal combination of both enhanced etch resistance and enhanced sensitivity required to satisfy both low and high voltage patterning applications. Resist sensitivity was enhanced by the direct incorporation of a photoacid generating monomer into the resist polymer backbone while the etch resistance of the material was improved by copolymn. with polyhedral oligo silsesquioxane methacrylate monomer.

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST electron beam lithog chem amplification pos nanocomposite resist; photoacid generator group silsesquioxane methacrylate polymer electron resist

IT Surface roughness
(lithog. properties of nanocomposite resist containing both photoacid generator and silicon-containing groups in polymer chain for low- and high voltage electron-beam exposures)

IT Silsesquioxanes
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(lithog. properties of nanocomposite resist containing both photoacid generator and silicon-containing groups in polymer chain for low- and high voltage electron-beam exposures)

IT Etching
(plasma, reactive ion; lithog. properties of nanocomposite resist containing both photoacid generator and silicon-containing groups in polymer chain for low- and high voltage electron-beam exposures)

IT Etching kinetics
(plasma; lithog. properties of nanocomposite resist containing both photoacid generator and silicon-containing groups in polymer chain for low- and high voltage electron-beam exposures)

IT Electron beam resists
(pos.-working, chemical amplified; lithog. properties of nanocomposite resist containing both photoacid generator and silicon-containing groups in polymer chain for low- and high voltage electron-beam exposures)

IT Thickness
X-ray resists
(x-ray sensitivity of nanocomposite resist containing both photoacid generator and silicon-containing groups in polymer chain for electron-beam exposures)

IT 75-59-2, Tetramethylammonium hydroxide
RL: NUU (Other use, unclassified); USES (Uses)
(developer; lithog. properties of nanocomposite resist containing both photoacid generator and silicon-containing groups in polymer chain for low- and high voltage electron-beam exposures)

IT **461699-74-1**
RL: PRP (Properties); TEM (Technical or engineered material use); USES

(Uses)
(lithog. properties of nanocomposite **resist** containing both photoacid generator and silicon-containing groups in polymer chain for low- and high voltage electron-beam exposures)

IT 75-46-7, Trifluoromethane 7782-44-7, Oxygen, uses
RL: NUU (Other use, unclassified); USES (Uses)
(plasma; lithog. properties of nanocomposite resist containing both photoacid generator and silicon-containing groups in polymer chain for low- and high voltage electron-beam exposures)

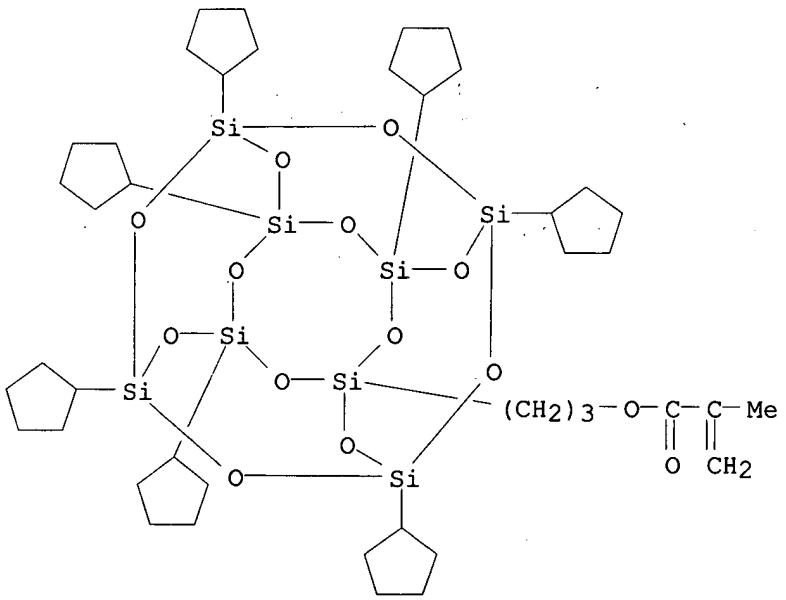
IT 7631-86-9, Silica, uses
RL: NUU (Other use, unclassified); USES (Uses)
(substrate; lithog. properties of nanocomposite resist containing both photoacid generator and silicon-containing groups in polymer chain for low- and high voltage electron-beam exposures)

IT **461699-74-1**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(lithog. properties of nanocomposite **resist** containing both photoacid generator and silicon-containing groups in polymer chain for low- and high voltage electron-beam exposures)

RN 461699-74-1 HCAPLUS
CN Sulfonium, dimethyl[4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]-, salt with trifluoromethanesulfonic acid (1:1), polymer with 1,1-dimethylethyl 2-methyl-2-propenoate, 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate, methyl 2-methyl-2-propenoate and 2-methyl-2-propenoic acid (9CI) (CA INDEX NAME)

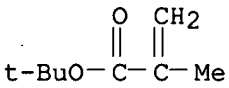
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



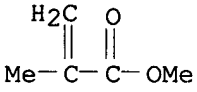
CM 2

CRN 585-07-9
CMF C8 H14 O2



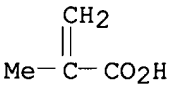
CM 3

CRN 80-62-6
CMF C5 H8 O2



CM 4

CRN 79-41-4
CMF C4 H6 O2

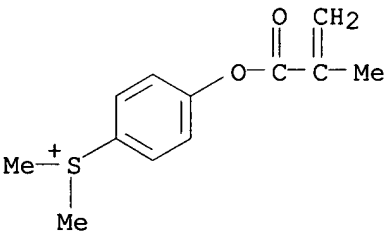


CM 5

CRN 352455-54-0
CMF C12 H15 O2 S . C F3 O3 S

CM 6

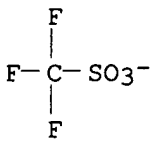
CRN 141718-72-1
CMF C12 H15 O2 S



CM 7

CRN 37181-39-8

CMF C F3 O3 S



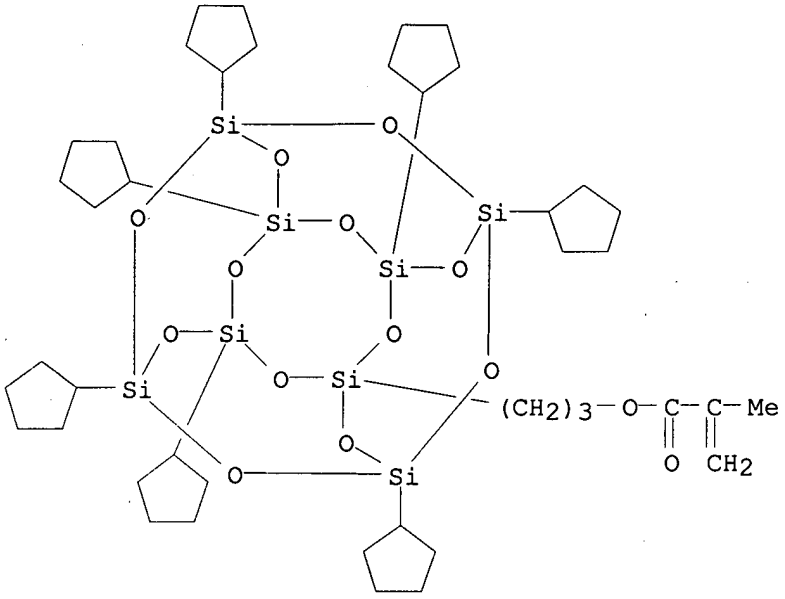
RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 2 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:304847 HCAPLUS
DN 139:188229
TI High sensitivity nanocomposite resists for EUV lithography
AU Azam Ali, M.; Gonsalves, K. E.; Golovkina, V.; Cerrina, F.
CS Department of Chemistry and Cameron Applied Research Center, Polymer Chemistry NanoTechnology Lab., The University of North Carolina, Charlotte, NC, 28223, USA
SO Microelectronic Engineering (2003), 65(4), 454-462
CODEN: MIENEF; ISSN: 0167-9317
PB Elsevier Science B.V.
DT Journal
LA English
AB A novel nanocomposite photoresist was synthesized for extreme UV lithog. (EUVL) by a radical polymerization process. This resist system exhibited enhanced sensitivity and contrast for EUVL. The potential for EUVL nanofeatures is also examined The high sensitivity and the desirable contrast in this resist, indicates that it is a promising candidate not only for sub-100 nm resolution EUVL, but also for X-ray lithog. and low voltage electron beam lithog.
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST high sensitivity nanocomposite resist EUV lithog photoresist photoacid generator
IT Photolithography
(UV; high sensitivity nanocomposite resists for EUV lithog.)
IT Nanocomposites
Photoresists
(high sensitivity nanocomposite resists for EUV lithog.)
IT 75-59-2, Tetramethylammonium hydroxide
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(developer; high sensitivity nanocomposite resists for EUV lithog.)
IT **461699-74-1**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(high sensitivity nanocomposite **resists** for EUV lithog.)
IT **461699-74-1**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(high sensitivity nanocomposite **resists** for EUV lithog.)
RN 461699-74-1 HCAPLUS
CN Sulfonium, dimethyl[4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]-, salt with trifluoromethanesulfonic acid (1:1), polymer with 1,1-dimethylethyl 2-methyl-2-propenoate, 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate, methyl 2-methyl-2-propenoate

and 2-methyl-2-propenoic acid (9CI) (CA INDEX NAME)

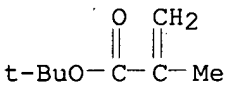
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



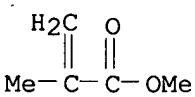
CM 2

CRN 585-07-9
CMF C8 H14 O2



CM 3

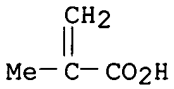
CRN 80-62-6
CMF C5 H8 O2



CM 4

CRN 79-41-4

CMF C4 H6 O2

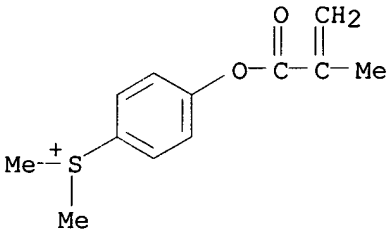


CM 5

CRN 352455-54-0
CMF C12 H15 O2 S . C F3 O3 S

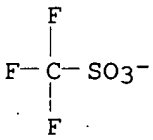
CM 6

CRN 141718-72-1
CMF C12 H15 O2 S



CM 7

CRN 37181-39-8
CMF C F3 O3 S



RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 3 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:716627 HCAPLUS
DN 137:270509
TI High resolution resists comprising nanoparticles and inorganic moieties for next generation lithographies
IN Gonsalves, Kenneth E. applicant
PA University of North Carolina at Charlotte, USA; University of Connecticut
SO PCT Int. Appl., 62 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002073308	A1	20020919	WO 2002-US7338	20020311
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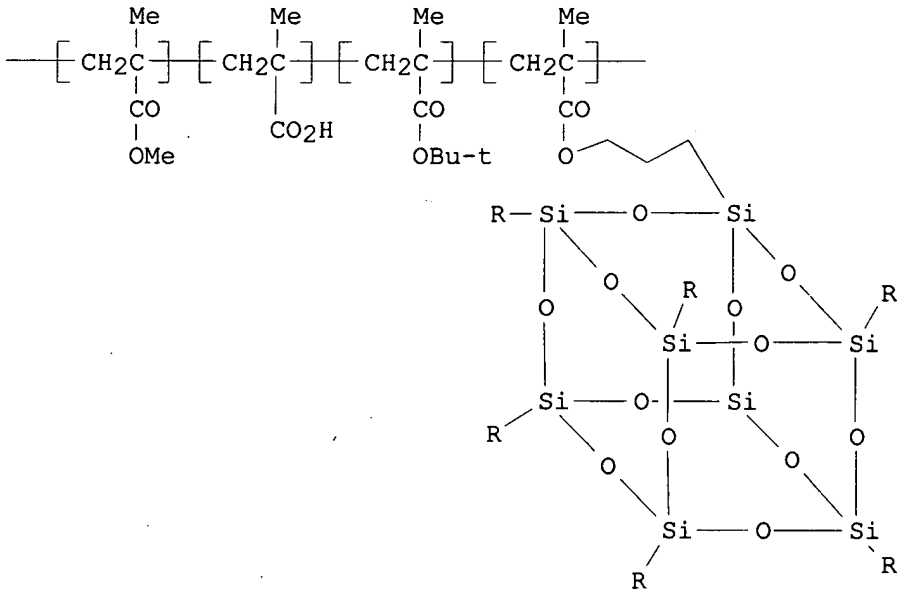
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2002182541	A1	20021205	US 2001-992560	20011105
	EP 1377876	A1	20040107	EP 2002-723388	20020311
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	JP 2004530921	T2	20041007	JP 2002-572502	20020311
PRAI	US 2001-274719P	P	20010312		
	WO 2002-US7338	W	20020311		

GI



I

AB The present invention provides new high resolution resists applicable to next generation lithogs., methods of making these novel resists, and methods of using these new resists in lithog. processes to effect state-of-the-art lithogs. New nanocomposite resists comprising polymers of the general formula I (R = alkyl, cycloalkyl, silyl, aryl, aralkyl, alkenyl) and nanoparticles in a polymer matrix are provided in the invention. New chemical amplified resists that incorporate inorg. moieties as part of the polymer and chemical amplified resists that incorporate photoacid generating

groups within the polymeric chain are presented. Novel non-chemical amplified yet photosensitive resists, and new organic-inorg. hybrid resists are also provided. This invention and the embodiments described constitute fundamentally new architectures for high resolution resists that achieve high sensitivity, contrast, resolution and high plasma etch resistance.

IC ICM G03C001-725
ICS G03F007-039; G03F007-075; G03F007-26

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38, 76

ST chem amplified resist nanoparticle silsesquioxane photoacid generator copolymer polymer; lithog electron ion beam x ray chem amplified resist; photolithog UV chem amplified resist nanoparticle silsesquioxane

IT Photolithography
(UV; chemical amplified resists comprising copolymers with sulfonium photoacid generator monomer for)

IT Resists
(chemical amplified resists comprising copolymers with sulfonium photoacid generator monomer)

IT Electron beam lithography
Ion beam lithography
X-ray lithography
(chemical amplified resists comprising copolymers with sulfonium photoacid generator monomer for)

IT Integrated circuits
(chemical amplified resists comprising copolymers with sulfonium photoacid generator monomer for fabrication of)

IT Polyoxymethylenes, preparation
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(chemical amplified resists comprising polyacetals)

IT Silsesquioxanes
RL: TEM (Technical or engineered material use); USES (Uses)
(chemical amplified resists comprising polyhydral oligosilsesquioxanes, nanoparticles and inorg. moieties)

IT 43127-35-1, ZEP 520
RL: TEM (Technical or engineered material use); USES (Uses)
(ZEP 520; chemical amplified resists comprising polyhydral oligosilsesquioxanes, nanoparticles and inorg. moieties)

IT **352455-55-1P 362675-17-0P 461699-74-1P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(chemical amplified **resists** comprising copolymers with sulfonium photoacid generator monomer)

IT 461699-77-4P 461699-80-9P
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(chemical amplified resists comprising polyacetals)

IT 359408-40-5P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(chemical amplified resists comprising polyhydral oligosilsesquioxanes, nanoparticles and inorg. moieties)

IT 136849-03-1
RL: TEM (Technical or engineered material use); USES (Uses)
(chemical amplified resists comprising polyhydral oligosilsesquioxanes, nanoparticles and inorg. moieties)

IT **338731-99-0P**

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(chemical amplified **resists** comprising sulfonium photoacid generator polymer)

IT 2170-03-8, Itaconic anhydride
RL: TEM (Technical or engineered material use); USES (Uses)
(dissoln. promoter; chemical amplified resists comprising copolymers with sulfonium photoacid generator monomer)

IT 352455-54-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(in preparation of copolymers containing sulfonium photoacid generator monomer)

IT 108-95-2, Phenol, reactions 920-46-7, Methacryloyl chloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(in preparation of sulfonium photoacid generator monomer)

IT 1005-35-2P 301152-82-9P 364325-13-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(in preparation of sulfonium photoacid generator monomer)

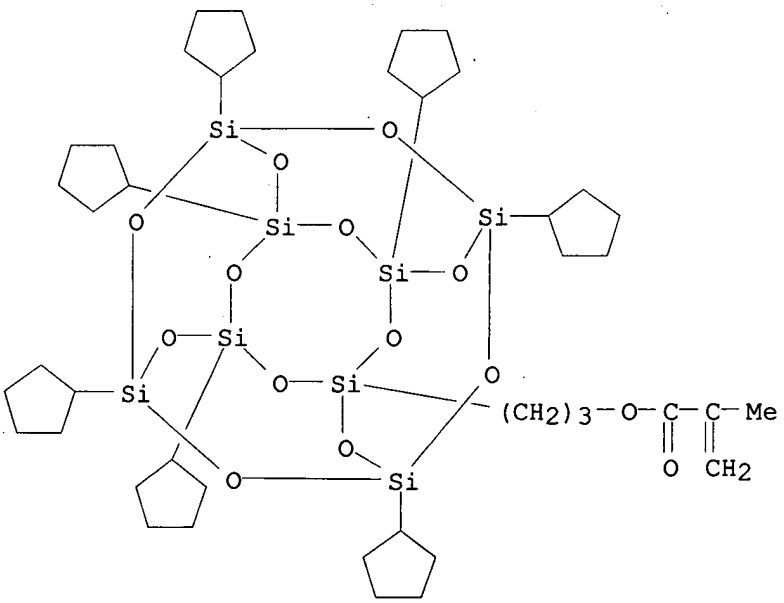
IT **352455-55-1P 362675-17-0P 461699-74-1P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(chemical amplified **resists** comprising copolymers with sulfonium photoacid generator monomer)

RN 352455-55-1 HCAPLUS

CN Sulfonium, dimethyl[4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]-, salt with trifluoromethanesulfonic acid (1:1), polymer with 1,1-dimethylethyl 2-methyl-2-propenoate and 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

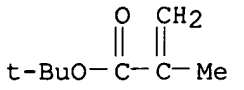
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



CM 2

CRN 585-07-9
CMF C8 H14 O2

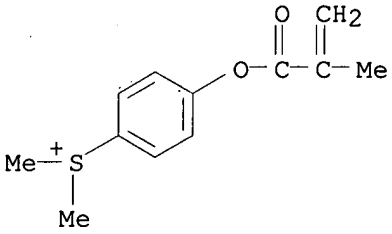


CM 3

CRN 352455-54-0
CMF C12 H15 O2 S . C F3 O3 S

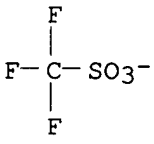
CM 4

CRN 141718-72-1
CMF C12 H15 O2 S



CM 5

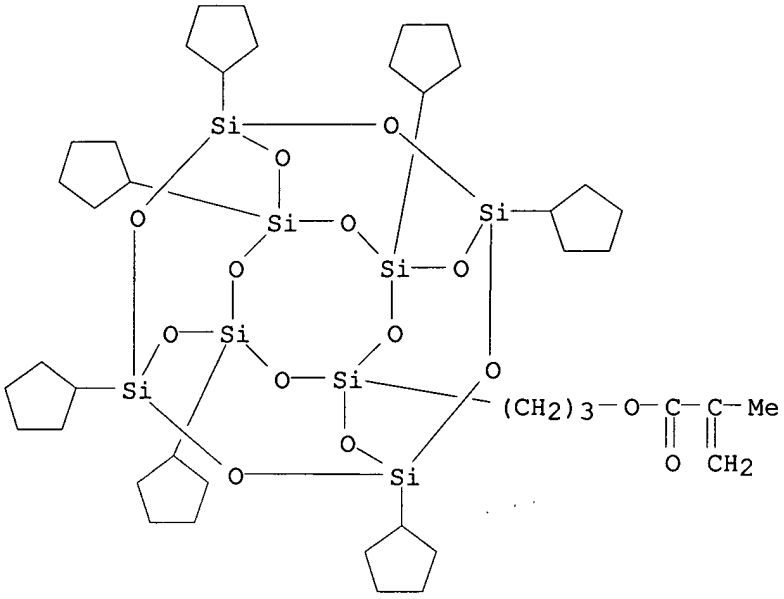
CRN 37181-39-8
CMF C F3 O3 S



RN 362675-17-0 HCAPLUS
CN Sulfonium, dimethyl[4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]-, salt with trifluoromethanesulfonic acid (1:1), polymer with dihydro-3-methylene-2,5-furandione, 1,1-dimethylethyl 2-methyl-2-propenoate, 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate and methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

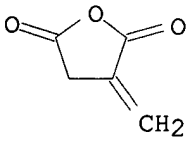
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



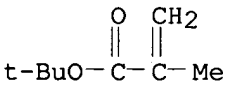
CM 2

CRN 2170-03-8
CMF C5 H4 O3



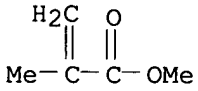
CM 3

CRN 585-07-9
CMF C8 H14 O2



CM 4

CRN 80-62-6
CMF C5 H8 O2

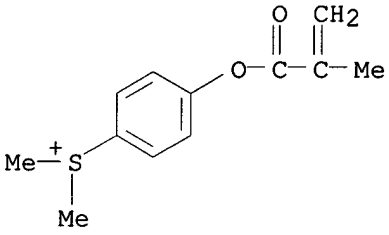


CM 5

CRN 352455-54-0
CMF C12 H15 O2 S . C F3 O3 S

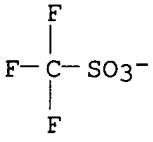
CM 6

CRN 141718-72-1
CMF C12 H15 O2 S



CM 7

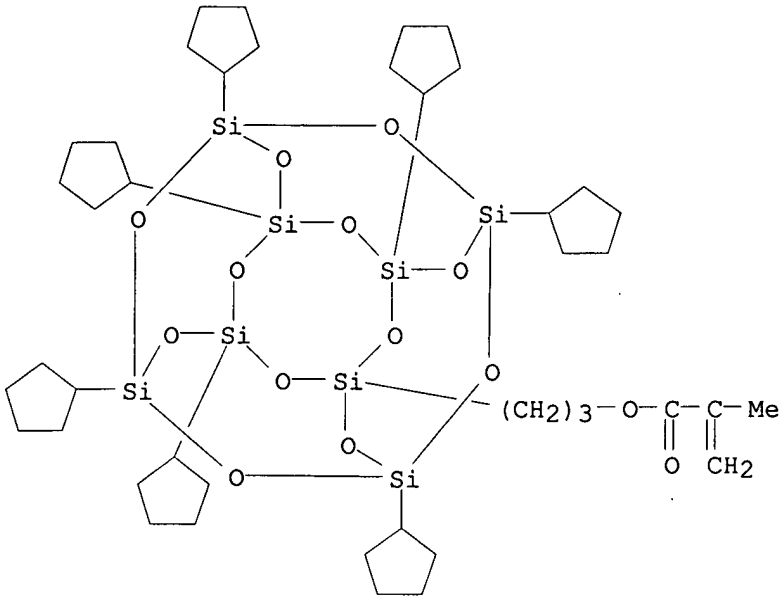
CRN 37181-39-8
CMF C F3 O3 S



RN 461699-74-1 HCAPLUS
CN Sulfonium, dimethyl[4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]-, salt with trifluoromethanesulfonic acid (1:1), polymer with 1,1-dimethylethyl 2-methyl-2-propenoate, 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate, methyl 2-methyl-2-propenoate and 2-methyl-2-propenoic acid (9CI) (CA INDEX NAME)

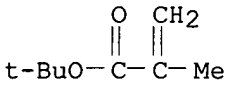
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



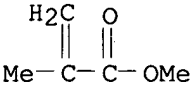
CM 2

CRN 585-07-9
CMF C8 H14 O2



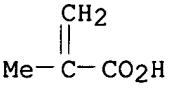
CM 3

CRN 80-62-6
CMF C5 H8 O2



CM 4

CRN 79-41-4
CMF C4 H6 O2

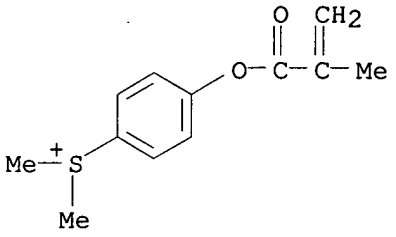


CM 5

CRN 352455-54-0
CMF C12 H15 O2 S . C F3 O3 S

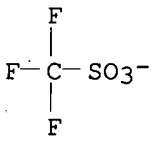
CM 6

CRN 141718-72-1
CMF C12 H15 O2 S



CM 7

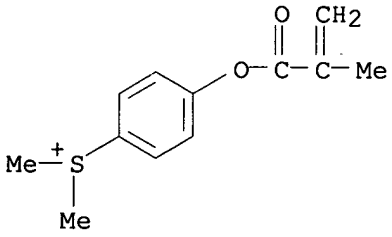
CRN 37181-39-8
CMF C F3 O3 S



IT **338731-99-0P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(chemical amplified **resists** comprising sulfonium photoacid generator polymer)
RN 338731-99-0 HCAPLUS
CN Sulfonium, dimethyl[4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]-, salt with trifluoromethanesulfonic acid (1:1), homopolymer (9CI) (CA INDEX NAME)

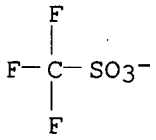
CM 1

CRN 141718-72-1
CMF C12 H15 O2 S



CM 2

CRN 37181-39-8
CMF C F3 O3 S



RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 4 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:803920 HCAPLUS
DN 136:110029
TI Novel CA resists with photoacid generator in polymer chain
AU Wu, Hengpeng; Gonsalves, Kenneth E.
CS Polymer Program at the Institute of Materials Science & Department of Chemistry, University of Connecticut, Storrs, CT, 06269, USA
SO Proceedings of SPIE-The International Society for Optical Engineering (2001), 4345(Pt. 1, Advances in Resist Technology and Processing XVIII), 521-527
CODEN: PSISDG; ISSN: 0277-786X
PB SPIE-The International Society for Optical Engineering
DT Journal
LA English
AB Novel chemical amplified (CA) resists with photoacid generating units in the polymer chains were synthesized and their lithog. properties evaluated under both 248 nm and 20 keV electron beam exposures. The pos.-tone CA resists were found to exhibit excellent film formation behavior and extremely high sensitivity.
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST chem amplified photoresist methacrylate polymer sulfonium photoacid generator pendant; electron beam resist methacrylate polymer sulfonium acid generator pendant
IT Positive photoresists
(chemical amplified; preparation and lithog. characterization of chemical amplified photoresists based on methacrylate polymer containing sulfonium photoacid generating pendant units)
IT Electron beam resists
(chemical amplified; preparation and lithog. characterization of chemical amplified resists based on methacrylate polymer containing sulfonium acid

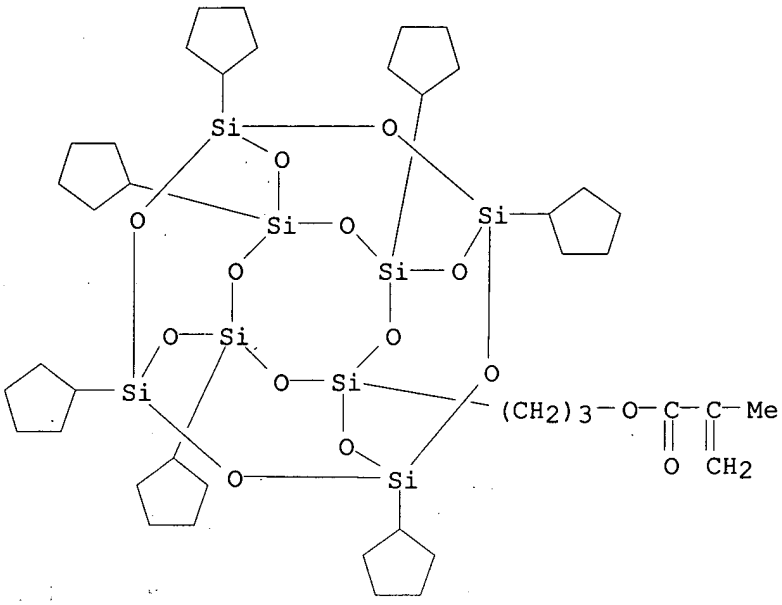
Article in "Materials Research Society symp. Proceedings" → has better Date. (Also more detailed)

2/25-3/2/01 Santa Clara, CA USA.

generating pendant units)
IT 108-95-2, Phenol, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(condensation with dimethylsulfoxide in presence of HCl in synthesis of methacrylate polymer containing sulfonium photoacid generating pendant units)
IT 75-59-2, Tetramethylammonium hydroxide
RL: NUU (Other use, unclassified); USES (Uses)
(developer; preparation and lithog. characterization of chemical amplified photoresists based on methacrylate polymer containing sulfonium photoacid generating pendant units)
IT 1005-35-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(metathesis reaction in synthesis of methacrylate polymer containing sulfonium photoacid generating pendant units)
IT 301152-82-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(neutralization with excessive NaOH in MeOH in synthesis of methacrylate polymer containing sulfonium photoacid generating pendant units)
IT 352455-54-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(polymerization with methacrylate monomers in synthesis of methacrylate polymer containing sulfonium photoacid generating pendant units)
IT **352455-55-1P 362675-17-0P 388610-68-2P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation and lithog. characterization of chemical amplified **photoresists** based on methacrylate polymer containing sulfonium photoacid generating pendant units)
IT 364325-13-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(reaction with methacryoyl chloride in synthesis of methacrylate polymer containing sulfonium photoacid generating pendant units)
IT 37286-64-9, Polypropylene glycol methyl ether
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; preparation and lithog. characterization of chemical amplified photoresists based on methacrylate polymer containing sulfonium photoacid generating pendant units)
IT **352455-55-1P 362675-17-0P 388610-68-2P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation and lithog. characterization of chemical amplified **photoresists** based on methacrylate polymer containing sulfonium photoacid generating pendant units)
RN 352455-55-1 HCAPLUS
CN Sulfonium, dimethyl[4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]-, salt with trifluoromethanesulfonic acid (1:1), polymer with 1,1-dimethylethyl 2-methyl-2-propenoate and 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

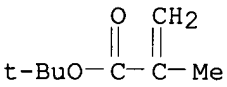
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



CM 2

CRN 585-07-9
CMF C8 H14 O2

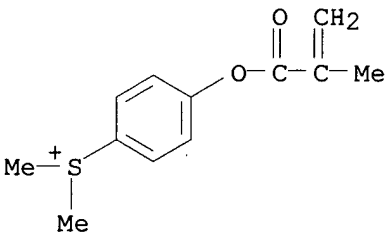


CM 3

CRN 352455-54-0
CMF C12 H15 O2 S . C F3 O3 S

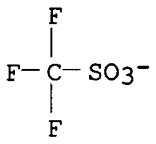
CM 4

CRN 141718-72-1
CMF C12 H15 O2 S



CM 5

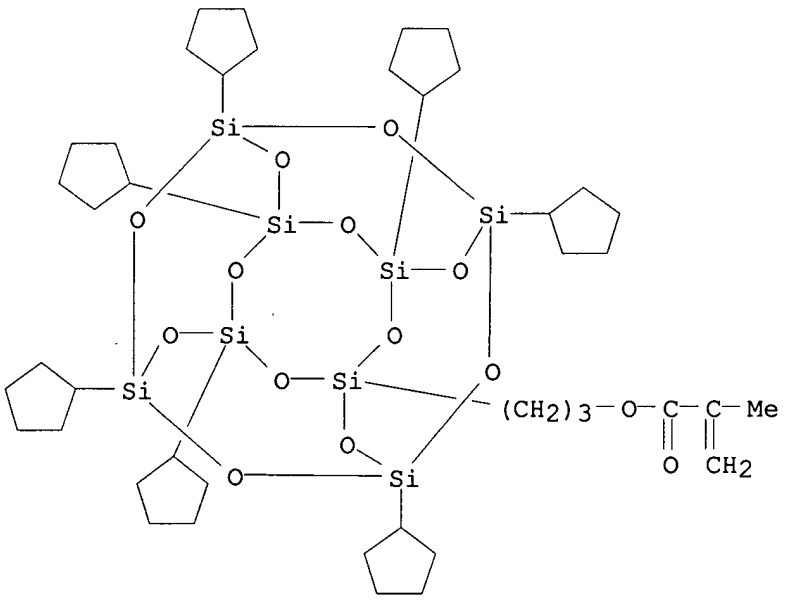
CRN 37181-39-8
CMF C F3 O3 S



RN 362675-17-0 HCAPLUS
CN Sulfonium, dimethyl[4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]-, salt with trifluoromethanesulfonic acid (1:1), polymer with dihydro-3-methylene-2,5-furandione, 1,1-dimethylethyl 2-methyl-2-propenoate, 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate and methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

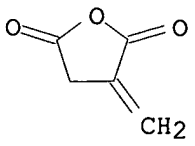
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



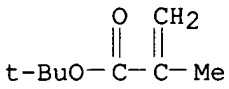
CM 2

CRN 2170-03-8
CMF C5 H4 O3



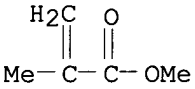
CM 3

CRN 585-07-9
CMF C8 H14 O2



CM 4

CRN 80-62-6
CMF C5 H8 O2

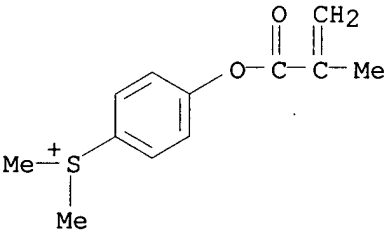


CM 5

CRN 352455-54-0
CMF C12 H15 O2 S . C F3 O3 S

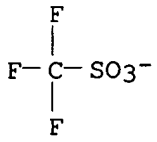
CM 6

CRN 141718-72-1
CMF C12 H15 O2 S



CM 7

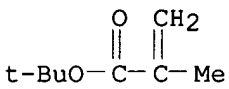
CRN 37181-39-8
CMF C F3 O3 S



RN 388610-68-2 HCAPLUS
CN Sulfonium, dimethyl[4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]-, salt with trifluoromethanesulfonic acid (1:1), polymer with 1,1-dimethylethyl 2-methyl-2-propenoate and methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

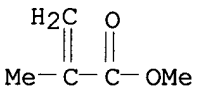
CM 1

CRN 585-07-9
CMF C8 H14 O2



CM 2

CRN 80-62-6
CMF C5 H8 O2

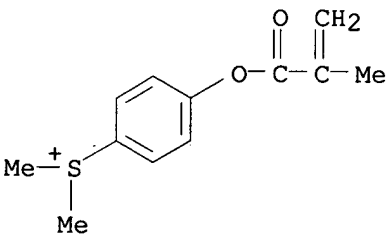


CM 3

CRN 352455-54-0
CMF C12 H15 O2 S . C F3 O3 S

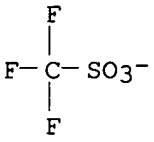
CM 4

CRN 141718-72-1
CMF C12 H15 O2 S



CM 5

CRN 37181-39-8
CMF C F3 O3 S



RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 5 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:594033 HCAPLUS
DN 135:296081
TI Preparation of a photoacid generating monomer and its application in lithography
AU Wu, Hengpeng; Gonsalves, Kenneth E.
CS Polymer Program at the Institute of Materials Science & Department of Chemistry, University of Connecticut, Storrs, CT, 06269, USA
SO Advanced Functional Materials (2001), 11(4), 271-276
CODEN: AFMDC6; ISSN: 1616-301X
PB Wiley-VCH Verlag GmbH
DT Journal
LA English
AB A photoacid generating (PAG) monomer containing a sulfonium group was synthesized and its polymerization behavior was studied by conducting homopolymn. and copolymn. with various methacrylates found in chemical amplified photoresists. The PAG homopolymer itself acted as a high sensitivity neg. resist. The PAG/methacrylates copolymers functioned as novel chemical amplified (CA) resists with PAGs incorporated in the polymer chain. Due to absence of phase separation, the resists exhibited excellent film formation behavior. Preliminary results showed that acid generation efficiency remained almost the same regardless of remarkably differing components and compns. in the PAG/methacrylates copolymers. Finally, their imaging properties were studied by exposure to 248 nm deep-UV (DUV) radiation.
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST sulfonium photoacid monomer lithog dimethylsulfonium methacrylate triflate polymer resist
IT Photoresists
(chemical amplified; preparation of photoacid generating homopolymer and its imaging property as neg. photoresist in lithog.)
IT Negative photoresists
(chemical-amplified; preparation of photoacid generating homopolymer and its imaging property as neg. photoresist in lithog.)
IT Imaging
Lithography
UV radiation
(preparation of photoacid generating homopolymer and its imaging property as neg. photoresist in lithog.)
IT 108-95-2P, Phenol, reactions 1005-35-2P 301152-82-9P 352455-54-0P

Year
Issue
~April
Use "Materials Research Soc. Symp. Proceedings" Instead.

364325-13-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of photoacid generating monomer and application in lithog.)

IT **338731-99-0**
RL: DEV (Device component use); POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(preparation of photoacid generator polymer and application as neg. **resist** in lithog.)

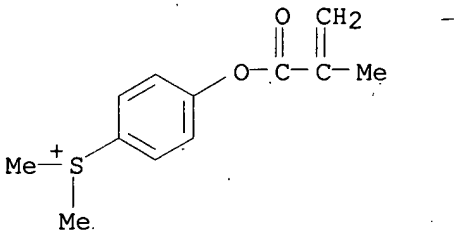
IT **338731-99-0**
RL: DEV (Device component use); POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(preparation of photoacid generator polymer and application as neg. **resist** in lithog.)

RN 338731-99-0 HCAPLUS

CN Sulfonium, dimethyl[4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]-, salt with trifluoromethanesulfonic acid (1:1), homopolymer (9CI) (CA INDEX NAME)

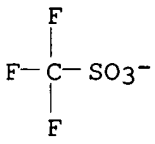
CM 1

CRN 141718-72-1
CMF C12 H15 O2 S



CM 2

CRN 37181-39-8
CMF C F3 O3 S



RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 6 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:546589 HCAPLUS
DN 135:280376
TI High resolution resists for next generation lithography: the nanocomposite approach
AU Gonsalves, Kenneth E.; Wu, Hengpeng; Hu, Yongqi; Merhari, Lhadi
CS Polymer Program at the Institute of Materials Science & Department of Chemistry, University of Connecticut, Storrs, CT, 06268, USA

SO Materials Research Society Symposium Proceedings (2001), 636(Nonlithographic and Lithographic Methods of Nanofabrication: From Ultralarge-Scale Integration to Photonics to Molecular Electronics), D6.5/1-D6.5/12
CODEN: MRSPDH; ISSN: 0272-9172
PB Materials Research Society
DT Journal
LA English

AB Except for ion-beam lithog., deep-UV (DUV), x-ray, and in particular electron-beam lithog. suffer significantly from proximity effects, leading to severe degradation of resolution in classical resists. The authors report a new class of resists based on organic/inorg. nanocomposites having a structure that reduces the proximity effects. Synthetic routes are described for a ZEP520/nano-SiO2 resist where 47 nm wide lines have been written with a 40 nm diameter, 20 keV electron beam at no sensitivity cost. Other resist systems based on polyhedral oligosilsesquioxane copolymd. with Me methacrylate, tert-Bu methacrylate, methacrylic acid and a proprietary photoacid generator are also presented. These nanocomposite resists suitable for DUV and electron beam lithog. show enhancement in both contrast and RIE resistance in oxygen. Tentative mechanisms responsible for proximity effect reduction are also discussed.

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST silica nanoparticle modified ZEP520 lithog resist proximity effect redn; org inorg nanocomposite lithog resist proximity effect redn; silsesquioxane methacrylate polymer lithog resist proximity effect redn
IT Sputtering
(etching, reactive; lithog. resists with improved reactive ion etching resistance from methacrylate copolymers containing oligosilsesquioxane pendant)
IT Silsesquioxanes
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(lithog. resists with improved reactive ion etching resistance from methacrylate copolymers containing oligosilsesquioxane pendant)
IT Hybrid organic-inorganic materials
Proximity effect
(organic/inorg. nanocomposite lithog. resist with reduced proximity effect)
IT Electron beam resists
Resists
(silica nanoparticle-modified ZEP520 nanocomposite lithog. resist with reduced proximity effect)
IT Etching
(sputter, reactive; lithog. resists with improved reactive ion etching resistance from methacrylate copolymers containing oligosilsesquioxane pendant)
IT 43127-35-1, ZEP520
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(ZEP520; silica nanoparticle-modified ZEP520 nanocomposite lithog. resist with reduced proximity effect)
IT 352455-54-0D, polymers 359408-40-5 **362675-17-0**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(lithog. **resists** with improved reactive ion etching **resistance** from methacrylate copolymers containing oligosilsesquioxane pendant)
IT 75-73-0, Carbon tetrafluoride 7782-44-7, Oxygen, uses

RL: NUU (Other use, unclassified); USES (Uses)
(plasma; lithog. resists with improved reactive ion etching resistance from methacrylate copolymers containing oligosilsesquioxane pendant)

IT 7631-86-9, Silica, properties
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(silica nanoparticle-modified ZEP520 nanocomposite lithog. resist with reduced proximity effect)

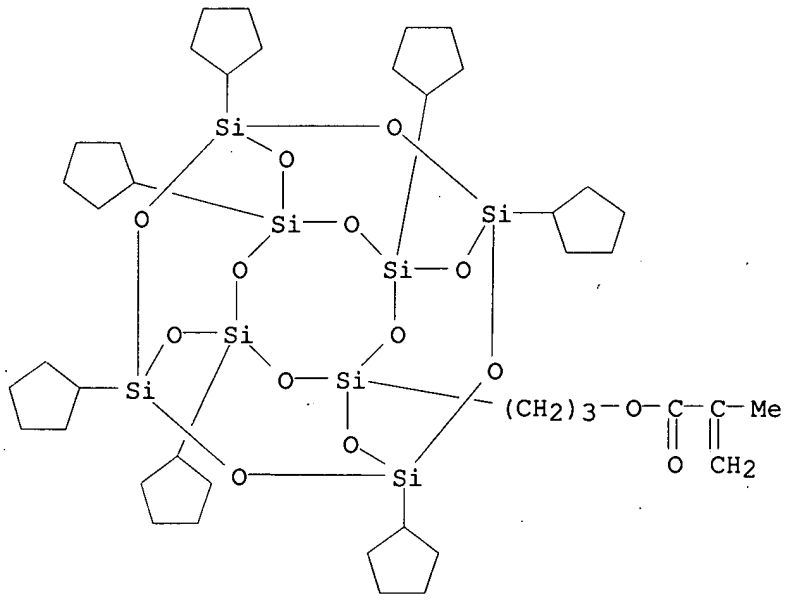
IT **362675-17-0**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(lithog. **resists** with improved reactive ion etching **resistance** from methacrylate copolymers containing oligosilsesquioxane pendant)

RN 362675-17-0 HCAPLUS

CN Sulfonium, dimethyl[4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]-, salt with trifluoromethanesulfonic acid (1:1), polymer with dihydro-3-methylene-2,5-furandione, 1,1-dimethylethyl 2-methyl-2-propenoate, 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate and methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

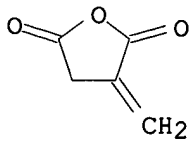
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



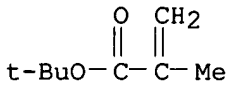
CM 2

CRN 2170-03-8
CMF C5 H4 O3



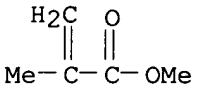
CM 3

CRN 585-07-9
CMF C8 H14 O2



CM 4

CRN 80-62-6
CMF C5 H8 O2

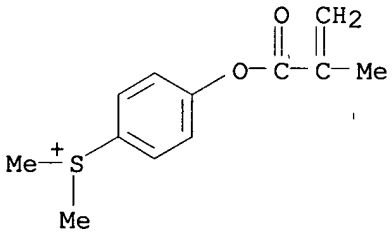


CM 5

CRN 352455-54-0
CMF C12 H15 O2 S . C F3 O3 S

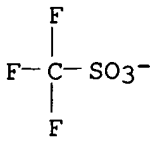
CM 6

CRN 141718-72-1
CMF C12 H15 O2 S



CM 7

CRN 37181-39-8
CMF C F3 O3 S



RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 7 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:374991 HCAPLUS
DN 135:160082
TI Novel positive-tone chemically amplified resists with photoacid generator in the polymer chains
AU Wu, Hengpeng; Gonsalves, Kenneth E.
CS Polymer Program at the Institute of Materials Science and Department of Chemistry, University of Connecticut, Storrs, CT, 06269, USA
SO Advanced Materials (Weinheim, Germany) (2001), 13(9), 670-672
CODEN: ADVMEW; ISSN: 0935-9648
PB Wiley-VCH Verlag GmbH
DT Journal
LA English
AB A sulfonium photoacid generating monomer was synthesized using a four-step synthesis scheme. This PAG monomer was successfully incorporated into methacrylate based chemical amplified resists by free radical copolymn. The resists were found to exhibit excellent film formation behavior due to absence of phase separation, and extremely high sensitivity owing to high PAG loading in the polymer chain. Lithog. properties of the resists were also evaluated under both 248 nm and 20 keV electron radiation. High sensitivity also affords these resists as potential candidates for low voltage EB lithog.
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST sulfonium photoacid generating monomer pos chem amplified resist; photoresist DUV electron beam lithog sulfonium photoacid generating monomer
IT Photolithography
Positive photoresists
(preparation and lithog. application of methacrylate based chemical amplified
resists comprising sulfonium photoacid generating monomer)
IT 75-59-2, Tetramethylammonium hydroxide
RL: NUU (Other use, unclassified); USES (Uses)
(developer; preparation and lithog. application of methacrylate based chemical
amplified resists comprising sulfonium photoacid generating monomer)
IT **352455-55-1P**
RL: PNU (Preparation, unclassified); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation and lithog. application of methacrylate based chemical amplified
resists comprising sulfonium photoacid generating monomer)
IT 352455-54-0P
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(preparation and lithog. application of methacrylate based chemical amplified

Use Materials Research Soc. Symp. Proc article instead.

resists comprising sulfonium photoacid generating monomer)

IT **352455-55-1P**

RL: PNU (Preparation, unclassified); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(preparation and lithog. application of methacrylate based chemical amplified

resists comprising sulfonium photoacid generating monomer)

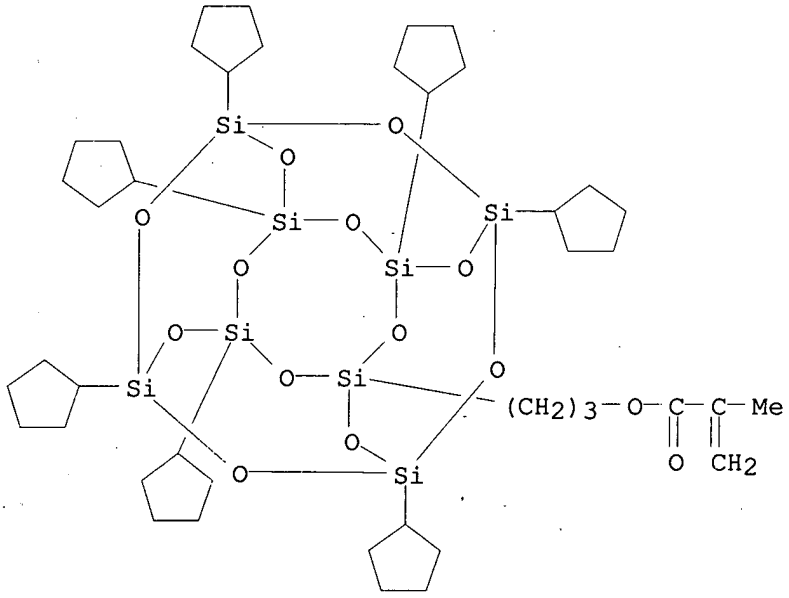
RN 352455-55-1 HCAPLUS

CN Sulfonium, dimethyl[4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]-, salt with trifluoromethanesulfonic acid (1:1), polymer with 1,1-dimethylethyl 2-methyl-2-propenoate and 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 169391-91-7

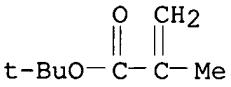
CMF C42 H74 O14 Si8



CM 2

CRN 585-07-9

CMF C8 H14 O2



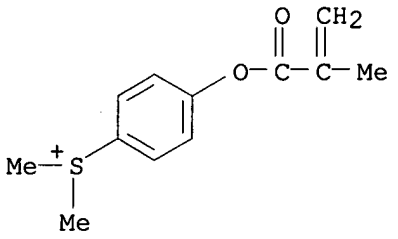
CM 3

CRN 352455-54-0

CMF C12 H15 O2 S . C F3 O3 S

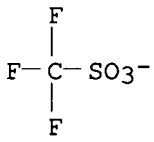
CM 4

CRN 141718-72-1
CMF C12 H15 O2 S



CM 5

CRN 37181-39-8
CMF C F3 O3 S



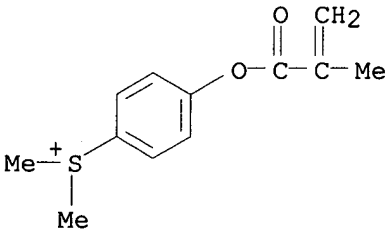
RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 8 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:169993 HCAPLUS
DN 134:346381
TI A novel single-component negative resist for DUV and electron beam lithography
AU Wu, Hengpeng; Gonsalves, Kenneth E.
CS Polymer Program at the Institute of Materials Science and Department of Chemistry, University of Connecticut, Storrs, CT, 06269, USA
SO Advanced Materials (Weinheim, Germany) (2001), 13(3), 195-197
CODEN: ADVMEW; ISSN: 0935-9648
PB Wiley-VCH Verlag GmbH
DT Journal
LA English
AB A neg.-tone photoresist was synthesized. Sulfonium salts have long been found to be sensitive to UV radiation and actually gained wide applications as photoacid generators in chemical-amplified photoresists. For this reason, sulfonium groups were chosen as radiation-sensitive groups. First, a sulfonium-group containing monomer was synthesized, and then polymerized
Its lithog. properties were evaluated under both 248 nm DUV and EB radiation. The results showed that high sensitivity could be achieved without using chemical amplification. Besides, no swelling phenomenon was observed for this neg. resist.
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST single component resist UV electron beam lithog
IT Resists
(neg.-tone; novel single-component neg. resist for DUV and electron beam lithog.)
IT Electron beam lithography
UV and visible spectra
UV radiation
(novel single-component neg. resist for DUV and electron beam lithog.)
IT Silsesquioxanes
RL: DEV (Device component use); NUU (Other use, unclassified); POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(novel single-component neg. resist for DUV and electron beam lithog.)
IT **338731-99-0**
RL: DEV (Device component use); NUU (Other use, unclassified); POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(novel single-component neg. **resist** for DUV and electron beam lithog.)
IT **338731-99-0**
RL: DEV (Device component use); NUU (Other use, unclassified); POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(novel single-component neg. **resist** for DUV and electron beam lithog.)
RN 338731-99-0 HCAPLUS
CN Sulfonium, dimethyl[4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]-, salt with trifluoromethanesulfonic acid (1:1), homopolymer (9CI) (CA INDEX NAME)

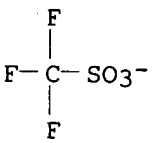
CM 1

CRN 141718-72-1
CMF C12 H15 O2 S



CM 2

CRN 37181-39-8
CMF C F3 O3 S



RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 9 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1998:545694 HCAPLUS
DN 129:223253
TI Positive-working photoresist composition
IN Aogo, Toshiaki; Sato, Kenichiro
PA Fuji Photo Film Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 58 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 10221852	A2	19980821	JP 1997-24011	19970206
PRAI JP 1997-24011		19970206		

AB The title composition comprises a resin having ≥1 repeating unit containing groups that are decomposed upon active ray or irradiation to generate acid, ≥1 alicyclic group-containing repeating unit, and ≥1 repeating unit containing groups that are decomposed by the action of acid to increase the solubility in alkaline developing solns. The composition shows high sensitivity toward light of wavelength ≤250 nm, especially ≤220 nm, and high dry etch resistance and provides high resolution resist patterns with good profile independent of the elapse of time from exposure to post-bake.
IC ICM G03F007-039
ICS G03F007-039; G03F007-004; G03F007-033; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38
ST photoresist alicyclic polymer; acid generating polymer photoresist; alkali soluble polymer photoresist
IT Positive photoresists
(photoresist composition containing polymer having acid-generating group, alicyclic group, and alkali-soluble group)
IT **212579-87-8P 212579-89-0P 212579-92-5P**
212579-95-8P **212580-01-3P** 212580-02-4P 212580-07-9P
212580-08-0P 212580-11-5P 212580-14-8P 212580-16-0P 212580-19-3P
212580-21-7P 212580-24-0P 212580-27-3P 212580-30-8P 212580-33-1P
212580-36-4P 212580-37-5P 212580-40-0P **212580-41-1P**
212628-39-2P
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**photoresist** composition containing polymer having acid-generating group, alicyclic group, and alkali-soluble group)
IT 4814-74-8P, N-Hydroxymaleimide 31796-20-0P 51920-52-6P 52858-59-0P
132603-01-1P 143451-66-5P 173947-55-2P 194536-38-4P 201683-64-9P, Triphenylsulfonium p-styrenesulfonate 201683-93-4P, Diphenyliodonium p-styrenesulfonate 212579-88-9P 212580-09-1P 212580-22-8P
212580-25-1P 212580-28-4P 212580-42-2P 212580-43-3P 212580-44-4P
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(preparation and polymerization of)
IT 524-38-9P
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(preparation and reaction with styrenesulfonyl chloride)
IT 2426-02-0, Tetrahydrophthalic anhydride 5470-11-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of tetrahydrophthalimide)
IT 2633-67-2, 4-Styrenesulfonyl chloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with benzenesulfinic acid)
IT 4836-66-2, 2,4-Dinitrobenzyl alcohol
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with chlorosulfonylpropyl methacrylate)
IT 79-41-4, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with dihydropyran)
IT 760-93-0, Methacrylic anhydride
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with hydroxybicyclooctane)
IT 98-09-9, Benzenesulfonyl chloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with hydroxymaleimide)
IT 434-13-9, Lithocholic acid
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with isocyanatoethyl methacrylate)
IT 30674-80-7, 2-Isocyanatoethyl methacrylate
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with lithocholic acid)
IT 702-98-7, 2-Hydroxy-2-methyladamantane 107319-57-3, 2,4-Bis(trichloromethyl)-6-p-hydroxyphenyl-1,3,5-triazine
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with maleic anhydride)
IT 109-92-2 142-68-7, Tetrahydropyran 3970-21-6, 2-Methoxyethoxymethyl chloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with methacrylic acid)
IT 77-53-2, (+)-Cedrol 115-18-4 15598-80-8, 9-Hydroxy-bicyclo[3.3.1]nonane 37465-25-1, 2-Hydroxy-bicyclo[3.3.0]octane
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with methacrylic anhydride)
IT 212580-45-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with nitrobenzyl alc.)
IT 1483-72-3, Diphenyliodonium chloride 4270-70-6, Triphenylsulfonium chloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with sodium styrenesulfonate)
IT 119-51-7 618-41-7, Benzenesulfinic acid
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with styrenesulfonyl chloride)
IT 108-31-6, 2,5-Furandione, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with triazine deriv/)
IT 2695-37-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with triphenylsulfonium chloride)
IT **212579-87-8P 212579-89-0P 212579-92-5P 212580-01-3P 212580-36-4P 212580-41-1P**
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**photoresist** composition containing polymer having acid-generating group, alicyclic group, and alkali-soluble group)

RN 212579-87-8 HCAPLUS
CN Sulfonium, triphenyl-, salt with 4-ethenylbenzenesulfonic acid (1:1), polymer with 1,1-dimethylethyl 2-methyl-2-propenoate, dodecahydro-1-acenaphthylenyl 2-methyl-2-propenoate and 2-methyl-2-propenoic acid (9CI) (CA INDEX NAME)

CM 1

CRN 212579-86-7
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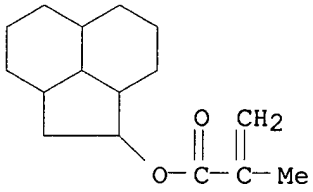
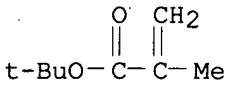


CM 2

CRN 585-07-9
CMF C8 H14 O2



CM 3

CRN 79-41-4
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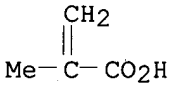
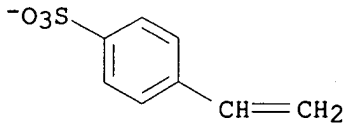


CM 4

CRN 201683-64-9
CMF C18 H15 S . C8 H7 O3 S

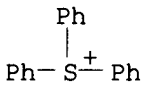
CM 5

CRN 46061-72-7
CMF C8 H7 O3 S



CM 6

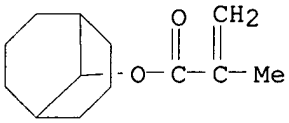
CRN 18393-55-0
CMF C18 H15 S



RN 212579-89-0 HCAPLUS
CN Sulfonium, triphenyl-, salt with 4-ethenylbenzenesulfonic acid (1:1), polymer with bicyclo[3.3.1]non-9-yl 2-methyl-2-propenoate, 1,1-dimethyl-2-propenyl 2-methyl-2-propenoate and 2-methyl-2-propenoic acid (9CI) (CA INDEX NAME)

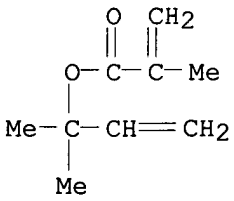
CM 1

CRN 212579-88-9
CMF C13 H20 O2



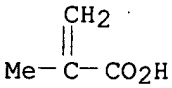
CM 2

CRN 173947-55-2
CMF C9 H14 O2



CM 3

CRN 79-41-4
CMF C4 H6 O2

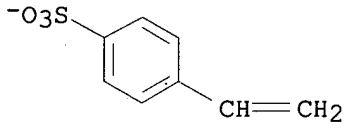


CM 4

CRN 201683-64-9
CMF C18 H15 S . C8 H7 O3 S

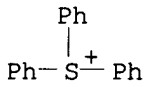
CM 5

CRN 46061-72-7
CMF C8 H7 O3 S



CM 6

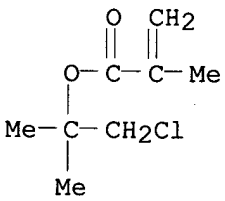
CRN 18393-55-0
CMF C18 H15 S



RN 212579-92-5 HCAPLUS
CN Sulfonium, triphenyl-, salt with 3-sulfopropyl 2-methyl-2-propenoate (1:1), polymer with 2-chloro-1,1-dimethylethyl 2-methyl-2-propenoate, 2-[(2-hydroxy-2,6,6-trimethylbicyclo[3.1.1]hept-3-yl)oxy]ethyl 2-methyl-2-propenoate and 2-methyl-2-propenoic acid (9CI) (CA INDEX NAME)

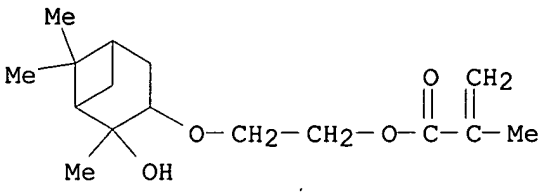
CM 1

CRN 212579-91-4
CMF C8 H13 Cl O2



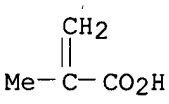
CM 2

CRN 212579-90-3
CMF C16 H26 O4



CM 3

CRN 79-41-4
CMF C4 H6 O2

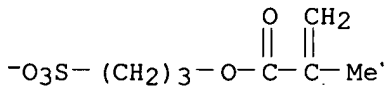


CM 4

CRN 201683-79-6
CMF C18 H15 S . C7 H11 O5 S

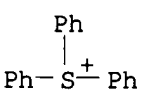
CM 5

CRN 133945-31-0
CMF C7 H11 O5 S



CM 6

CRN 18393-55-0
CMF C18 H15 S

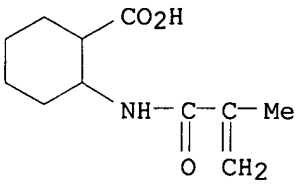


RN 212580-01-3 HCAPLUS
CN Sulfonium, [4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]diphenyl-, salt with

trifluoromethanesulfonic acid (1:1), polymer with (decahydro-9-hydroxy-4,8,8-trimethyl-1,4-methanoazulen-9-yl)methyl 2-methyl-2-propenoate, 2-[(2-methyl-1-oxo-2-propenyl)amino]cyclohexanecarboxylic acid and 5-oxo-2-cyclohexen-1-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

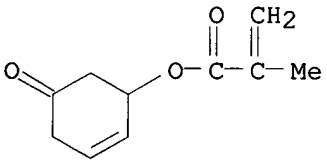
CM 1

CRN 212580-00-2
CMF C11 H17 N O3



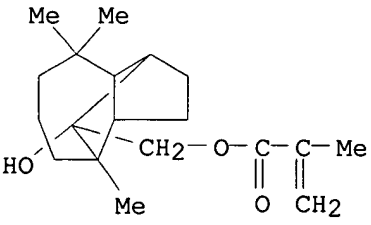
CM 2

CRN 212579-99-2
CMF C10 H12 O3



CM 3

CRN 212579-98-1
CMF C19 H30 O3

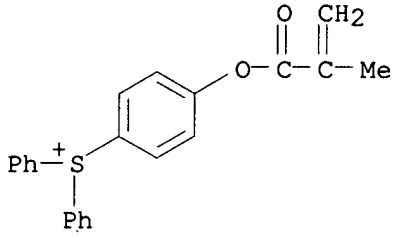


CM 4

CRN 212579-97-0
CMF C22 H19 O2 S . C F3 O3 S

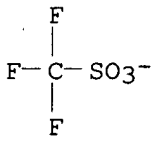
CM 5

CRN 212579-96-9
CMF C22 H19 O2 S



CM 6

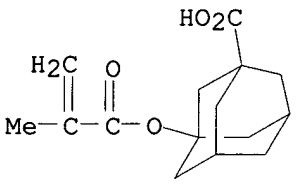
CRN 37181-39-8
CMF C F3 O3 S



RN 212580-36-4 HCAPLUS
CN Sulfonium, triphenyl-, salt with 1-methyl 4-oxo-4-[(4-sulfophenyl)amino]-2-butenoate (1:1), polymer with 1,1-dimethyl-2-propenyl 2-methyl-2-propenoate and 3-[(2-methyl-1-oxo-2-propenyl)oxy]tricyclo[3.3.1.13,7]decane-1-carboxylic acid (9CI) (CA INDEX NAME)

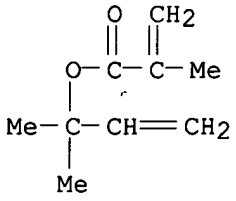
CM 1

CRN 212580-10-4
CMF C15 H20 O4



CM 2

CRN 173947-55-2
CMF C9 H14 O2

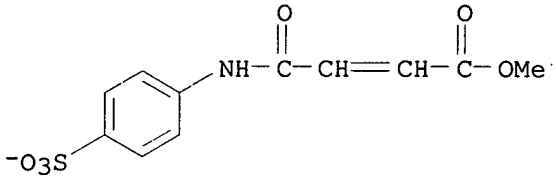


CM 3

CRN 212580-35-3
CMF C18 H15 S . C11 H10 N O6 S

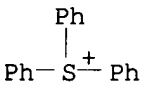
CM 4

CRN 212580-34-2
CMF C11 H10 N O6 S



CM 5

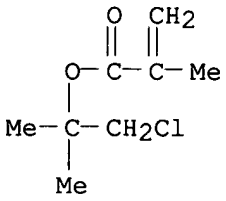
CRN 18393-55-0
CMF C18 H15 S



RN 212580-41-1 HCAPLUS
CN Sulfonium, triphenyl-, salt with 3-sulfopropyl 2-methyl-2-propenoate (1:1), polymer with 2-chloro-1,1-dimethylethyl 2-methyl-2-propenoate, cyclohexyl 2-methyl-2-propenoate and 2-methyl-2-propenoic acid (9CI) (CA INDEX NAME)

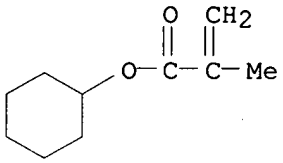
CM 1

CRN 212579-91-4
CMF C8 H13 Cl O2



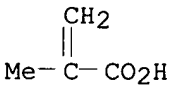
CM 2

CRN 101-43-9
CMF C10 H16 O2



CM 3

CRN 79-41-4
CMF C4 H6 O2

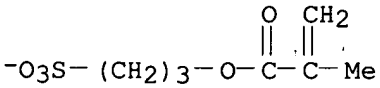


CM 4

CRN 201683-79-6
CMF C18 H15 S . C7 H11 O5 S

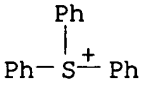
CM 5

CRN 133945-31-0
CMF C7 H11 O5 S



CM 6

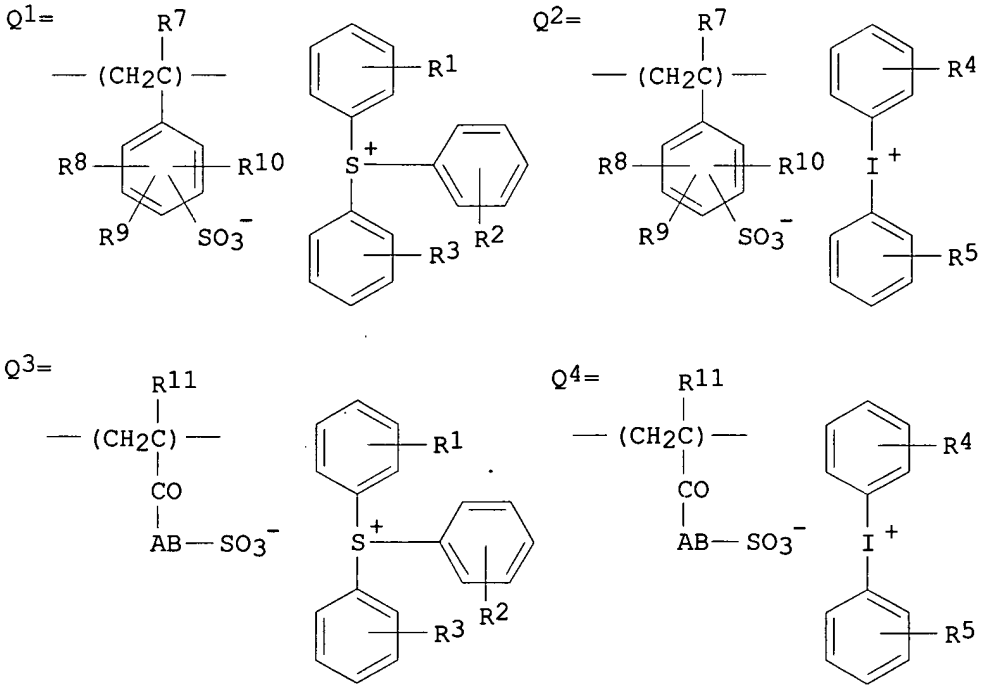
CRN 18393-55-0
CMF C18 H15 S



L15 ANSWER 10 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1998:134589 HCAPLUS
DN 128:161004
TI Photoresist composition using novel photoacid-generating resin
IN Aogo, Toshiaki; Sato, Kenichiro; Kodama, Kunihiko
PA Fuji Photo Film Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 62 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09325497	A2	19971216	JP 1996-141965	19960604
	JP 3613491	B2	20050126		
	US 5945250	A	19990831	US 1997-868932	19970604
PRAI	JP 1996-141965	A	19960604		

GI



AB The title composition comprises a sulfonium or iodonium salt resin containing ≥1 repeating unit selected from structural units I-IV [R1-5 = H, OH, halo, alkyl, cycloalkyl, alkoxy; R7, R11 = H, halo, CN, alkyl; R8-10 =

H, OH, halo, NO2, CO2H, alkyl, aralkyl, alkoxy; A = O; B = alkylene or arylene]. A pos.-working photosensitive composition may comprise a resin having groups which are decomposed by the action of acids to increase the solubility in alkaline developing solution and a resin having ≥1 of units I-IV and generating sulfonic acid upon receiving light. The pos.-working composition may contain (1) a low-mol.-weight acid-decomposable dissoln.-inhibitor with mol. weight ≤3000 which has groups decomposable with a sulfonic acid-generating resin having ≥1 of units Q1-Q4 and of which the solubility in alkaline developing solution is increased by the action of acids and (2) a resin insol. in water and soluble in alkaline aqueous solns. The composition shows high solubility in organic solvents, photosensitivity, and stability in the elapse of time after exposure and provides high quality resist patterns.

IC ICM G03F007-039
ICS G03F007-00; G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38

ST photoresist photoacid generator resin; sulfonium iodonium salt resin photoresist

IT Photoresists
(photoresist composition containing photoacid-generating resin)

IT 2695-37-6, Sodium 4-styrenesulfonate 4270-70-6, Triphenyl sulfonium chloride 5421-53-4, 4,4'-Bis(tert-butylphenyl)iodonium chloride 17332-73-9
RL: RCT (Reactant); RACT (Reactant or reagent)
(photoresist composition containing photoacid-generating resin)

IT 201683-64-9P 201683-67-2P 201683-92-3P 201683-93-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(photoresist composition containing photoacid-generating resin)

IT **201683-65-0P** 201683-68-3P 202590-51-0P, Benzyl methacrylate-2-(N-acryloyl)amino-2-methylpropanesulfonic acid-methacrylic acid copolymer
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**photoresist** composition containing photoacid-generating resin)

IT 201683-71-8 201683-72-9 201683-73-0 **201683-80-9**
201683-82-1 201683-83-2 **202590-44-1** 202590-45-2
202590-47-4 202590-49-6 202590-50-9
RL: TEM (Technical or engineered material use); USES (Uses)
(**photoresist** composition containing photoacid-generating resin)

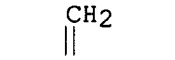
IT **201683-65-0P**
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**photoresist** composition containing photoacid-generating resin)

RN 201683-65-0 HCAPLUS

CN Sulfonium, triphenyl-, salt with 4-ethenylbenzenesulfonic acid (1:1), polymer with 2-methyl-2-propenoic acid (9CI) (CA INDEX NAME)

CM 1

CRN 79-41-4
CMF C4 H6 O2

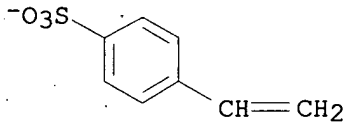


CM 2

CRN 201683-64-9
CMF C18 H15 S . C8 H7 O3 S

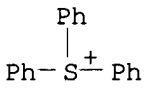
CM 3

CRN 46061-72-7
CMF C8 H7 O3 S



CM 4

CRN 18393-55-0
CMF C18 H15 S

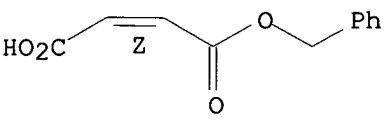


IT **201683-80-9 202590-44-1**
RL: TEM (Technical or engineered material use); USES (Uses)
(**photoresist** composition containing photoacid-generating resin)
RN 201683-80-9 HCAPLUS
CN Sulfonium, triphenyl-, salt with 3-sulfopropyl 2-methyl-2-propenoate, polymer with (Z)-phenylmethyl hydrogen 2-butenedioate (9CI) (CA INDEX NAME)

CM 1

CRN 13474-68-5
CMF C11 H10 O4

Double bond geometry as shown.

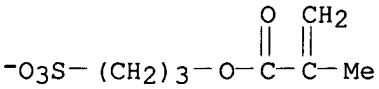


CM 2

CRN 201683-79-6
CMF C18 H15 S . C7 H11 O5 S

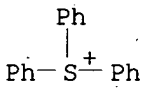
CM 3

CRN 133945-31-0
CMF C7 H11 O5 S



CM 4

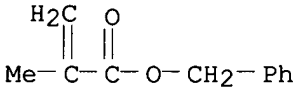
CRN 18393-55-0
CMF C18 H15 S



RN 202590-44-1 HCAPLUS
CN Sulfonium, triphenyl-, salt with 2-methyl-2-[(2-methyl-1-oxo-2-propenyl)amino]-1-propanesulfonic acid (1:1), polymer with 2-methyl-2-propenoic acid and phenylmethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

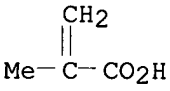
CM 1

CRN 2495-37-6
CMF C11 H12 O2



CM 2

CRN 79-41-4
CMF C4 H6 O2

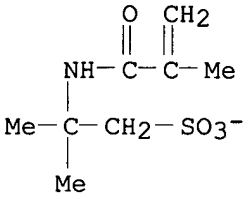


CM 3

CRN 202590-43-0
CMF C18 H15 S . C8 H14 N O4 S

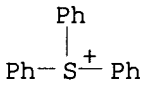
CM 4

CRN 202590-42-9
CMF C8 H14 N O4 S



CM 5

CRN 18393-55-0
CMF C18 H15 S



L15 ANSWER 11 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1992:408654 HCAPLUS
DN 117:8654
TI Unsaturated onium salts useful in photoresists
IN Steinmann, Alfred; Schaedeli, Ulrich
PA Ciba-Geigy A.-G., Switz.
SO Eur. Pat. Appl., 19 pp.
CODEN: EPXXDW
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 473547	A1	19920304	EP 1991-810657	19910820
	R: AT, BE, CH, DE, FR, GB, IT, LI, NL, SE				
	CA 2049772	AA	19920228	CA 1991-2049772	19910823
	JP 04230645	A2	19920819	JP 1991-240625	19910827
PRAI	CH 1990-2765	A	19900827		

OS MARPAT 117:8654
AB The onium salts CH2:C(R)ZCO2C6H4-p-YPh+ X- [R = H, Me; X = complex anion; Y = I, R2S (R2 = alkyl, alkylphenyl); Z = direct bond, C6H4, p-phenylenealkylene, alkylene] give copolymers with acid-labile monomers which can be used directly as photoresists. AIBN-initiated polymerization of 0.42 g p-CH2:CHCO2C6H4SPh2+ AsF6- (prepared in 81% yield by acryloylation of the alc.) with 8 g tetrahydropyran-2-yl 4-vinylbenzoate in THF at 60° gave 68% copolymer (I) with weight-average mol. weight 11,000 and polydispersity 2.7. A 1-μm film of I on Si was irradiated by UV (270-310 nm) through a mask, heated at 110° for 1 min, and

developed in 0.5% NaHCO3 to give a pos. image with resolution in the submicron range.

IC ICM C07C381-12
ICS G03F007-027

CC 35-2 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 25, 74

ST sulfonium salt unsatd manuf; iodonium salt unsatd manuf; photoresist onium salt copolymer; acryloyloxyphenylsulfonium salt copolymer; tetrahydropyranyl vinylbenzoate copolymer resist

IT Sulfonium compounds
RL: PREP (Preparation)
(unsatd., preparation and polymerization of)

IT Onium compounds
RL: USES (Uses)
(iodonium, unsatd., for use in photoresists)

IT Resists
(photo-, unsatd. onium salt copolymers as, manufacture of)

IT 141801-33-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(acryloylation and allylation of)

IT 108493-52-3 141801-36-7
RL: USES (Uses)
(acryloylation of)

IT 141801-38-9DP, copolymers **142064-60-6P 142064-61-7P**
RL: PREP (Preparation)
(**photoresists**, manufacture of)

IT 141801-32-3P 141801-34-5P 141801-35-6P 141801-38-9P
RL: PREP (Preparation)
(preparation of)

IT 106-95-6, Allyl bromide, reactions 814-68-6, Acryloyl chloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with (hydroxyphenyl)diphenylsulfonium salts)

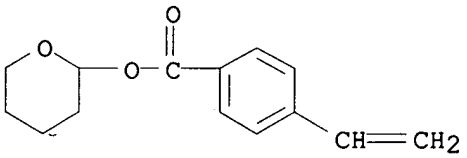
IT **142064-60-6P 142064-61-7P**
RL: PREP (Preparation)
(**photoresists**, manufacture of)

RN 142064-60-6 HCAPLUS

CN Sulfonium, [4-[(1-oxo-2-propenyl)oxy]phenyl]diphenyl-, hexafluoroarsenate(1-), polymer with tetrahydro-2H-pyran-2-yl 4-ethenylbenzoate (9CI) (CA INDEX NAME)

CM 1

CRN 128013-23-0
CMF C14 H16 O3

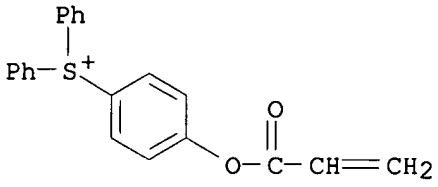


CM 2

CRN 141801-32-3
CMF C21 H17 O2 S . As F6

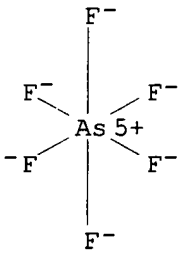
CM 3

CRN 141801-31-2
CMF C21 H17 O2 S



CM 4

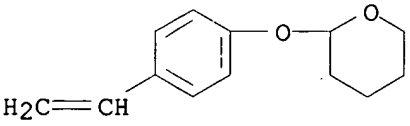
CRN 16973-45-8
CMF As F6
CCI CCS



RN 142064-61-7 HCAPLUS
CN Sulfonium, [4-[(1-oxo-2-propenyl)oxy]phenyl]diphenyl-, hexafluoroarsenate(1-), polymer with 2-(4-ethenylphenoxy)tetrahydro-2H-pyran (9CI) (CA INDEX NAME)

CM 1

CRN 65409-15-6
CMF C13 H16 O2

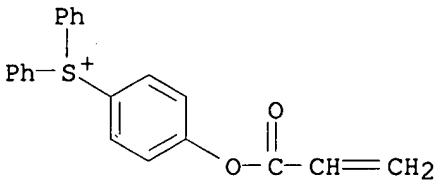


CM 2

CRN 141801-32-3
CMF C21 H17 O2 S . As F6

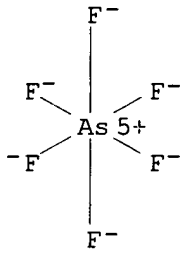
CM 3

CRN 141801-31-2
CMF C21 H17 O2 S



CM 4

CRN 16973-45-8
CMF As F6
CCI CCS



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